On seeing this couple, almost in a state of stark nakedness, seated on a bench among the cylinders and pistons of the engine, motionless for hours, we were necessarily reminded of the earthly paradise.

When among strangers the women are quiet and impassive, but when left to themselves they are full of fun and as playful as children. And this is generally the Indians' character.

The women take up a somewhat strange posture with their hands when they are standing. As they have no pockets to put them in, or fan with which to occupy them, or what have you, they place them upon their breasts which serve as supports for their arms which together rest upon them.

It would seem that such a habit would enlarge the breasts, but this is not so. The breasts are broad, it is true, but short and erect while the women are young. After expertos virum, and having given suck to one or more children, the breasts shrivel and retract in a very unaesthetic manner, to tell the truth. It is to be noted that both men and women age early there, and also die early, and to this must be attributed the fact that there are few gray hairs even when there are faces and bodies so wrinkled as to make one believe that their owners must be as old as Methuselah.

I have gone into some detail in this matter of the breasts because it is known that in other regions, according to what is said, the women, when they give suck, give the nipple over the shoulder to the child which they are carrying on their backs. The fact is that no such thing occurs here.

The women, along with the men, have abundant, coarse, straight hair. They wear it rather long but not as long as they might, for it is shortened by wearing it in an unkempt fashion (which serves them as protection for eyes and forehead against the sun) and also by cutting.

They cut their hair, that on their faces as well as that on their scalps, with the jaw of a fish called palometa, which is armed with extraordinarily sharp teeth placed in two rows. The upper teeth dovetail exactly with the lower.

The palometa, the raya (ray--Translator) and the yacaré (alligator--Translator) are the scourge of those who bathe in this river and the lakes or pools which are fed by it. The palometa snaps, tears

[37]

out chunks of flesh, and can even [180] be of some slim service, similar to that which is told concerning that fellow in the "Ricciardetto." It is an ovoid, laterally flattened fish. The ray is round, vertically flattened and has three barbs on its tail. It can make a very painful and dangerous wound with the middle barb when the fish is stepped on and lashes out with its tail. Some grow to be over a meter in diameter. It lies on the bottom of quiet pools, as close as it can to the bank; it would seem to be viviparous. The yacaré, a kind of crocodile, will without warning bite the leg or arm of an unfortunate father, drag him to the bottom and there devour him.

So it is that bathing, which was no necessary to cool ourselves off in the suffocating heat, was always embittered by the presence of these maneaters.

The married woman is faithful to her husband by inclination, education and fear. There are tales of terrible revenges wreaked by husbands upon their unfaithful wives, over whom they have power of life and death. While they are single they can be and often are free in their ways. It cannot be doubted that the whites attract their interest, if matters of racial difference do not intervene, for the poorest white is always in a position to give better presents than is the richest chief.

These women love decorations and clothing, but have no use for skirts or corsets. They wrap themselves from the waist down in a blanket, and hold it up with a belt or cord which is hidden behind the fold of cloth. In addition to this they know how to distribute these rags in such a way as to accentuate their good figure and yet at the same time not encumber themselves, a skill not to be expected on first seeing them. Their dress consists of robes, and when they have any they put them all on, be it winter or summer, partly because of the nomadic existence they lead and partly because they like to do so. One might say that the saying: what wards off cold also wards off heat, is particularly applicable to them.

Both men and women love bright colors (particularly red) and variety, but they also like white cloth. When they put on any garment they always do so in such a way as to leave one arm free. The women have a high regard for the kind of shirts which we wear.

The women make their own ornaments out of leather and broken shells, achieving a certain elegance of form, though with a greater or lesser degree of rusticity. They wear, from childhood, a sort of

At a wedding which is properly celebrated with all the attendant frills there are alcoholic beverages made from the pods of the algarrobo and vinal, and from forest honey -- regarding all of which I shall write in the following chapter. 273 [585]

Chapter VI

Fermented Beverages

Natural Products of Domestic Use

The algarrobo is to these parts what the chestnut tree is to Europe in its usefulness to the people who live in the region. By observation I have found that it grows in the area between one hundred and four hundred meters above sea level and between 30° and 15° of southern latitude, between the mountains and the sea. It does not like dampness, which keeps it from growing even in those places which would otherwise suit it. In dry, hot places I have come upon it even at an elevation of seven hundred meters above sea level, but always in flat country. 137 ●

The algarrobo is found in various situations. Sometimes there are whole forests of this tree only; sometimes it grows in company with others. In my judgment it is the most widely distributed tree in the region and deserves, for this reason, and because of its great importance to have a whole area or forest zone named after it. It is to be found, in fact, growing both in forests rooted in earth built up out of the waters when these lands were raised, and in alluvial soil recently washed down.

The wood of the algarrobo is ideal for most construction purposes (except for roofing) and carpentry, but usually has the drawback of being short. There oozes from the trunk a black resin for which we have no use but the Indians do. The fruit is in the shape of a pod and contains a somewhat sweet flour which is used to make bread and fermented drinks. 137 824

There are in the region three types of algarrobo: the white kind which has pods in color and size similar to our white beans, from which a good beverage is made and the flour of which could be used. The black kind with pods like black eyed peas from which an inferior

drink is made; and the so-called [187] "patay" algarrobo whose pods, like our white beans, are thick and produce a large amount of excellent flour with which bread -- called patay in the Quechua language -- is made. The first two have simple compound leaves, that is, each leaf is made up of pairs of leaflets placed evenly along its axis, with small thorns at the base of each leaf. The third type of algarrobo has complex-compound leaves in which the secondary leaflets are subdivided into many pairs of almost microspoic ones, as occurs in the churqui (Acacia cavenia), and also has thorns between ten and fifteen centimeters long, though not large in girth. 137 824

In order to make patay (bread) which is only made in Santiago and Catamarca in the basin of the Pueblos de Belen, the dry algarrobo pod, ready for grinding, is placed under a hardwood or stone pestle which is moved by a long lever. The pod, thus ground, is turned into flour, but the seeds, which are extraordinarily hard, do not even break. The flour is then sifted, poured and pressed into a pot which has been previously heated by being put out in the sun or near a fire. The pot is now sealed off with fine sand and then again placed in the sun or near a fire for a short while. In ten minutes the patay is ready, for the warming has no other object than to melt the honey contained in the flour in order to make it coalesce into a lump, this lump becoming very hard once the honey cools. Thus they make loaves weighing from four to six pounds and more, which can be packed into saddlebags, slung over the saddle and afford a delicious if somewhat cloying food. The flour is in some ways similar to chestnut flour. A slice of this, impaled on a knife and heated in the fire is a really superb tidbit, both in smell and in taste. Aloja is the Argentine (1) name given to the fermented beverages of that region, 252 273

1. Cacan (?) Ed.

while in Quechua they are called chicha (2), in Mataco; hŭ-ná;

2. Chicha is made from corn. Ed. --
See: Acca and Asua. [?--Translabor]

in Mocovi: nă-ná and nănn-ná; and in Vilela: tsŭc-cué.

It is worth noting that although they are such tipplers, they do 264
not drink anything with their meals, not even water. On board ship the Indian guests we entertained refused all beverages while they were eating. After they had finished eating they preferred to drink water by crouching beside the river and drinking out of one hand.

The Indians are great beggars and yet miserly with their own [609]
possessions where whites are concerned. This is understandable since they are poor.

It occurs to me that I should mention something which, though 142
out of place here, I must set down for fear of forgetting it later: 145

The Indian boys, until they are eight or ten have disproportionately large bellies, so much so that they customarily bind them at the level of the navel. Later on they lose their bloated tummies and grow into well proportioned men.

It seems pertinent to me to say that the algarrobo belongs to 137
our family of the garrobas (Ceratonia silicua) and the botanists know it under the name of Prosopis algarrobo. Its importance is immense in the domestic economy of the savages and country people. It deserves close attention for this reason. The crown grows to some ten meters in diameter but is not very dense, either because of the small number of leaves or because of their shape, yet it affords quite a fair amount of shade. The bark is very rough and is similar to that of the grape vine.

The vinal (Prosopis ruscifolia) is a very small tree, yet boasts a sizeable crown. It is remarkable for its thorns which are from ten to fifteen centimeters long and sometimes a centimeter thick, and very dangerous if one gets a jab from them. The leaves, which are about the same size as acacia leaves but more pointed and somewhat rough, are said to be an effective remedy for eye ailments.

The scientific name for the chañar is Gurlioea decorticans; and of the mistol, Ziziphus mistol.

The fruit of all these trees are avidly devoured by all manner of beasts, and the algarrobo and vinal pods are the best possible fattening fodder for horses and cattle [191].

A type of fruit which is also to be found in a wild state, but in very limited quantity in my experience , is the plum. This fruit has a pleasant taste and is all the more appreciated for its scarcity.

During the aloja revels squabbles, fights and killings are frequent, and this not only among the Indians but among the Chaco whites also. 578

A couple of words now about the yuchan, also called palo borracho (drunken tree--Translator). It is a bombaceous tree whose scientific name is Chorisia insignis, and might well be called the cotton tree. It has a strange shape which justifies its vernacular name. The trunk is shaped like an oil jar, that is, narrow at its base, wide in the middle and narrow once more at the point where the crown forks. The trunk grows to a diameter of two meters and is covered with spiked bumps. At most it reaches a height of four or five meters and is often accompanied by a shoot growing at its base. The crown is at first made up of only two branches which later subdivide and form a wide crown of some eight, ten or more meters in diameter. The leaves are similar to those of the walnut but a little smaller and provide good shade. 137

From the bark, strips are cut which are used for tying bundles, as roofing material, to wrap and tie bunches of tobacco leaves and for any similar use. The Indians make their canoes from the trunk, all of a piece. In order to do this all they do is hollow it out with any old tool, since the wood is soft and easily worked when newly cut but later becomes harder than cork although spongy like it when dry. The Matacos use the name cuóu quiác for canoe, which in their tongue means "duck." 824 [283] [396]

But the thing which is especially interesting about the yuchan is its fruit, which in size and shape is like a lemon. When it is ripe, which usually occurs between November and January, according to its location, the lemons split into four lobes and there appears a plume-like puff of cotton, white as snow, which little by little is carried away by the wind. 137

One of these open lemons is about the size of a fist, and each tree produces hundreds of them each year.

The Indians make a limited use of this cotton, but the whites do not, although I have seen in Catamarca, where the number of these trees is small, white cloth made from this material which won prizes at the Córdoba exhibition.

In the Chaco there is an immense number of yuchans which grow mixed in with other hard-wood trees. If this cotton could be

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used industrially, the yuchan and the cháguar (which has fiber serviceable in making rope) [192] as they are to be found over an enormous territory and grow without need of cultivation, would be of great commercial value.

Another interesting tree that has domestic use and may some day be employed industrially is the pacara (Enterolobium timboiva). It is a tree of great beauty, very tall, of large girth and having a great deal of foliage -- it is of the mimosa family. Its fruit is a flat, oblong, twisted pod of a dark chestnut color about an inch and a half long and which contains 12 percent to 15 percent of saponin. This pod is used [388] to get the grease out of clothes and wool.

To finish as we had started, I must add that the Indians are great 273 lovers of the alcoholic beverages common among the whites, and become so drunk as to be floored. Even in this detail are they like those who are not their brothers in Christ.

Chapter VII

Wars

The Indians are much addicted to wars, it must be confessed, 721 and they are perpetually fighting; it is -- if I may be allowed the expression -- a continual giving and taking.

One war follows another, either because the vanquished wish to avenge their previous losses or because the victors have begun to enjoy their victories. Causes for war are: having fished, hunted or harvested in foreign territory, or the need to annul an offence or the hope of gain.

These wars are not strategic ones in which one battle follows another until the enemy is helpless to defend himself; rather are they surprise attacks on camps with the object of overwhelming and pillaging them and carrying off cattle, boys and sometimes even women.

This is why the camps or villages, in forested regions, always 361 have flanks and back right up against the deep woods, where, if surprised, the inhabitants may find refuge, and where it would be impossible to pursue them as there is a veritable labyrinth of paths known only to the inhabitants of the village.

2: Karsten E-5 (1911-1913)1932 SI7 Mataco SI7

Introduction.

The vast alluvial lowland commonly known under the name of *El Gran Chaco*, is situated in the heart of South America, being bounded in the east by the rivers Paraguay and Paraná, in the west by the eastern cordilleras of the Bolivian Andes, and in the north and south approximately by latitudes 20° and 30° South respectively. Politically this territory is divided between the republics Argentine, Paraguay, and Bolivia, but the boundaries between Paraguay and Bolivia have long been uncertain owing to the fact that the interior parts of the Chaco are still very little known and practically no-man's land. In fact, northern Chaco has up till now remained a white spot on the map of South America. The very name of Chaco has been much disputed, but this question may now be regarded as definitely settled. Chaco is a Spanish form of the Quichua name *chacu*, 'hunting', 'chase'. The word has reference to the great hunting expeditions which, as we know, were annually arranged by the Incas, and on which thousands of Indians were employed as drivers. The name *chacu* was later applied to the Indians who devoted themselves to this kind of chase, as well as to the tracts where these hunts took place.[1]) The Incas, of course, only knew a small part of the immense territory which is now called Chaco, more strictly speaking the forest-clad slopes of the eastern cordilleras as well as the adjacent plains, regions which formerly were and in parts still are extremely rich in all kinds of game. The interior regions, particularly east of Pilcomayo, inhabited by savage Indians, were unknown to the Incas and were not explored until our own days.

The climate in the Gran Chaco is on the whole subtropical, but subject to great variations, a fact that accounts for the different character of the vegetation in different parts of the country. In the west, where

[1]) See Enrique de Gandia, *Historia del Gran Chaco*. Madrid, 1930, pp. 7 sqq.

[p. 1]

2: Karsten E-5 (1911-1913)1932 S17 Mataco S17

the annual rainfall is more abundant and the temperature more equable, we meet with a luxuriant vegetation and almost impenetrable virgin forests. When we pass eastwards this picture gradually changes. Open grass-covered plains dotted with fan palms (*Copernicia cerifera*), which in some places form real palm-groves, are varied by patches of arid deserts with lonely cactuses or with patches of forest, mostly composed of small and scrubby trees which sometimes seem almost impassable by man or beast. Occasionally, however, large forest trees are found. Among these the *Guayacan* (*Caesalpina melanocarpa*), the *Quebracho* (*Quebrachia Lorentzii*), and the *Palo santo* or holywood are well known as fine timber trees. Their iron-hard wood to a certain extent compensates the Chaco Indians for the complete lack of stone in their country, their most important weapons and implements being made of these kinds of wood. It is a remarkable fact that in the pampas regions of the Chaco not the smallest stone can be found within an area of hundreds of square miles; the soil is entirely composed of fine-grained silt, with occasional layers of sand.

From an alimental point of view the most common and at the same time most valuable tree is the *algaroba* (*Prosopis alba or juliflora*), which forms real forests. Its pod-like fruit, which is extremely rich in sugar, is very nourishing and in fact feeds thousands of Indians for two or three months of the year. Of this fruit moreover the natives brew their favourite national drink, the algaroba beer, which plays an important part in their social and religious life. Other wild trees of great nutritive value are the *tusca* (*Acacia aroma*), the *chañar* (*Gourliea decortitans*), and the *mistol* (*Sisyphus mistol*), from which also intoxicating fermented drinks are prepared.

A plant which is quite common in the thickets of the Chaco and which is very useful, although extremely troublesome to the traveller because of its long thorns, is the *caraguatá* plant (*Bromelia serra*). It is from the fibres of this plant that the Indians twine the thread of which they make their shirts, bags, nets, etc. Its edible root-stocks are also useful.

It is the scarcity of rain that stamps the vegetation in the interior of the Chaco, just as it exerts its influence upon the culture of the natives. Thus agriculture can be practised only in a very limited degree. A real rainy season scarcely exists, but the period when rainfalls are more common than at other times of the year — from October to March — is called »summer» in the Chaco. Owing to prolonged rains in the moun-

2: Karsten E-5 (1911-1913)1932 SI7 Mataco SI7

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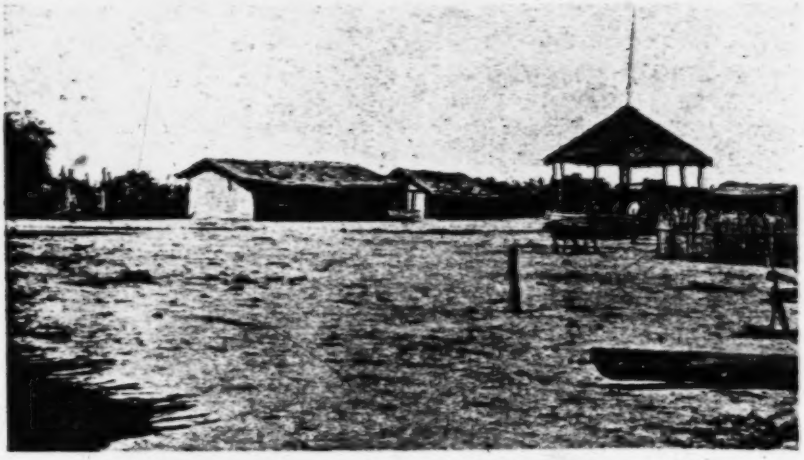
A landscape characteristic of the Chaco on the middle course af the Pilcomayo: grassy plains varying with patches of shrubby forest and palm groves.



A Bolivian fort on the middle course of the Pilcomayo.